Columbia River Salmon and Steelhead Endorsement Advisory Board

Application for Funding

Applicant: WA Dept. of Fish & Wildlife, Region 3 Fishery Management

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Proposal Title: "2016-17 McNary Reservoir Steelhead Fishery Monitoring"

Type of Proposal: Maintain/expand existing fishery **(new)**

Date of Submission: February 25, 2016

Effective Period of Funding: August 1, 2016 – March 31, 2017

Amount of Direct Budget Funding Requested: $42,918

Activity to be funded: Fishery Monitoring (creel census)

Background: Upriver Columbia River Summer Steelhead

Currently, most Columbia River steelhead populations destined for areas upstream of Bonneville Dam are listed for protection under the Endangered Species Act (ESA). At the same time, recreational opportunity for healthy hatchery stocks is very popular on the mainstem Columbia River and its tributaries. Therefore, fishery managers are tasked with recovering ESA listed populations while also providing for hatchery steelhead fishing opportunities. Under the 2008-17 *U.S. v. Oregon* Management Agreement (MA), non-Indian fisheries occurring in the mainstem Columbia River upstream to the Highway 395 Bridge near Pasco are limited to a 2% impact rate on upriver Group B (Snake/Clearwater River) summer steelhead during the fall season (~August – December). During January through July, another 2% is available for winter, spring and summer seasons. Included in the harvest and ESA impact calculations are five major tributaries (Wind, Little White, White, Deschutes and John Day rivers). A portion of the harvest in these tributaries counts towards the overall impacts for upper CR and Snake R. steelhead because migrating steelhead may "dip-in" to these cooler tributaries and then exit and continue the upstream migration.

Typically steelhead populations have been relatively stable based on passage at Bonneville Dam, averaging around 335,000 fish (August – October). In the more recent years, passage has been less than average, which means fewer fish are returning and fewer fish are available for these very popular steelhead fisheries. The most constraining stock of steelhead is the "Group B Index" steelhead. This stock is destined for the Clearwater River in the Snake River Basin and

are typically larger fish having spent 2-3 years in the ocean. These fish are visually identified as Group B (or "B-run") by having a length measurement of at least 78 cm (31 inches). The migration timing at Bonneville Dam for this steelhead stock begins in mid-August and continues into December as the fish gradually move upstream into the Snake R. and Clearwater R. Hatchery B-runs, primarily from Dworshak NFH, are available to recreational fisheries from August through December. During 2010-2014, average passage at Bonneville Dam totaled 40,000 Group B fish (11,000 wild) and ranged from 11,000 to 77,000. During 2011-13, there was a consecutive 3-year decline in the wild Group B steelhead return which triggered an inquiry from the parties to the *U.S. v Oregon*.

Recreational Steelhead Fisheries

Under permanent regulations, the mainstem Columbia River is open to the retention of hatchery summer steelhead from August 1 - March 31 from Buoy 10 upstream to the Tongue Point/Rocky Point line, May 16 - March 31 from the Tongue Point/Rocky Point line upstream to the I-5 Bridge, and from June 16 - March 31 upstream to the Highway 395 Bridge near Pasco.

Below Bonneville Dam, a robust creel program provides both harvest and release data for mainstem CR fisheries. Harvest during the fall season (Aug. – Oct.) has averaged around 7,000 summer steelhead annually over the past five years. Biological data such as fork length and mark rate are used to determine stock composition and hatchery/wild proportions. This data is also applied to the commercial gill net encounters to also estimate stock composition and mark rate since the sport and commercial fisheries essentially occur in the same area during the same time frame.

From Bonneville Dam upstream to the Highway 395 Bridge, fishery managers must rely on Catch Record Card (CRC) data because no creel data is consistently available. Hatchery steelhead harvest above Bonneville represents about 64% of the total harvest, averaging about 14,000 steelhead annually over the past five years. CRC data only provides data for harvested fish; there is no biological sampling data available to provide length or mark-rate data. Stock composition can only be assumed based on minimal sampling at Bonneville Dam and applied to the kept and (assumed) released catch. There is no reliable estimate for released (wild) fish, which is needed to calculate ESA impacts. Incidental release mortalities are estimated based on the mark rate observed at Bonneville Dam.

Under the current management system, the area upstream of Bonneville Dam accounts for 64% of the hatchery harvest and Region 5 managers assign 58% of the total non-Indian ESA take for Group B wild fish to this area. Because there is little to no creel data currently available, the stock composition and incidental release mortalities associated with this fishery are assumptions that may be over (or under) estimating the actual take. If a creel program was initiated, especially in the most popular fishing areas for all months, at minimum a comparison could be made with the take assumptions currently used by managers.

McNary Reservoir Sport Fishery

McNary Reservoir (Lake Wallula) extends from McNary Dam upstream to the Highway 395 Bridge at Pasco (CRC Area Code 533) and is open for steelhead fishing annually from June 16 through March 31 by permanent regulation. This fishery is very popular with an annual harvest of roughly 3,000 steelhead (range 1,351 – 5,797) over the past eight years (2006- 2014) based on

CRC data (Table 1). The fishery is primarily a boat fishery with anglers concentrated in the forebay area of McNary Dam (Figure 1). Boat anglers troll the upstream edge of the boat restricted zone, anchor and "bobber and shrimp" fish along the riprap at the Washington abutment, and there is a popular night fishery trolling lighted lures. In addition to the boat fishery, bank anglers are concentrated at the Oregon forebay boat launch and the Wallula Junction area downstream of the Walla Walla River confluence. Angler effort in the Wallula Junction area begins to increase in early August and is one of the first locations in the mid-Columbia where steelhead harvest is routinely observed during the summer months. Although the fishery opens on June 16, very little harvest (1.3%) is observed (based on CRC estimates) until August (Table 2).

This fishery impacts ESA-listed (listed) Snake, mid-Columbia, and Upper Columbia R. (UCR) wild steelhead, listed Snake R. summer/fall chinook, and UCR and Snake R. sockeye. CRCs used by WDFW to estimate harvest do not estimate the number of wild salmon/steelhead impacted by individual fisheries and these impacts vary greatly dependent upon location and effort. The District 4 Fish Biologist has received numerous calls in the last five years indicating that the catch is predominantly wild steelhead after September.

Table 1. Monthly harvest estimates of hatchery steelhead in Catch Record Card (CRC Area 533, June 16 – March 31, 2006-2014.

	Jun	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Total**
2013-14	4	39	60	78	773	209	96	50	14	28	**1,351**
2012-13	6	20	130	1,056	1,268	517	277	175	54	23	**3,526**
2011-12	3	12	200	415	800	299	252	119	110	29	**2,239**
2010-11	2	108	89	761	542	301	207	186	53	17	**2,266**
2009-10	0	32	187	932	2,261	785	423	214	131	59	**5,024**
2008-09	2	17	58	500	928	565	108	87	103	36	**2,404**
2007-08	3	0	150	1,269	2,624	1,157	321	150	75	45	**5,794**
2006-07	6	2	35	661	1,314	450	199	115	78	65	**2,925**
Mean	**3**	**29**	**114**	**709**	**1,314**	**535**	**235**	**137**	**77**	**38**	**3,191**

Table 2. Percentage of harvest by month of hatchery steelhead in CRC Area 533, June 16 – March 31, 2006-2014.

	Jun	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
2013-14	0%	3%	4%	6%	57%	15%	7%	4%	1%	2%
2012-13	0%	1%	4%	30%	36%	15%	8%	5%	2%	1%
2011-12	0%	1%	9%	19%	36%	13%	11%	5%	5%	1%
2010-11	0%	5%	4%	34%	24%	13%	9%	8%	2%	1%
2009-10	0%	1%	4%	19%	45%	16%	8%	4%	3%	1%
2008-09	0%	1%	2%	21%	39%	24%	4%	4%	4%	1%
2007-08	0%	0%	3%	22%	45%	20%	6%	3%	1%	1%
2006-07	0%	0%	1%	23%	45%	15%	7%	4%	3%	2%
Mean	**0%**	**1%**	**4%**	**21%**	**41%**	**16%**	**8%**	**5%**	**3%**	**1%**

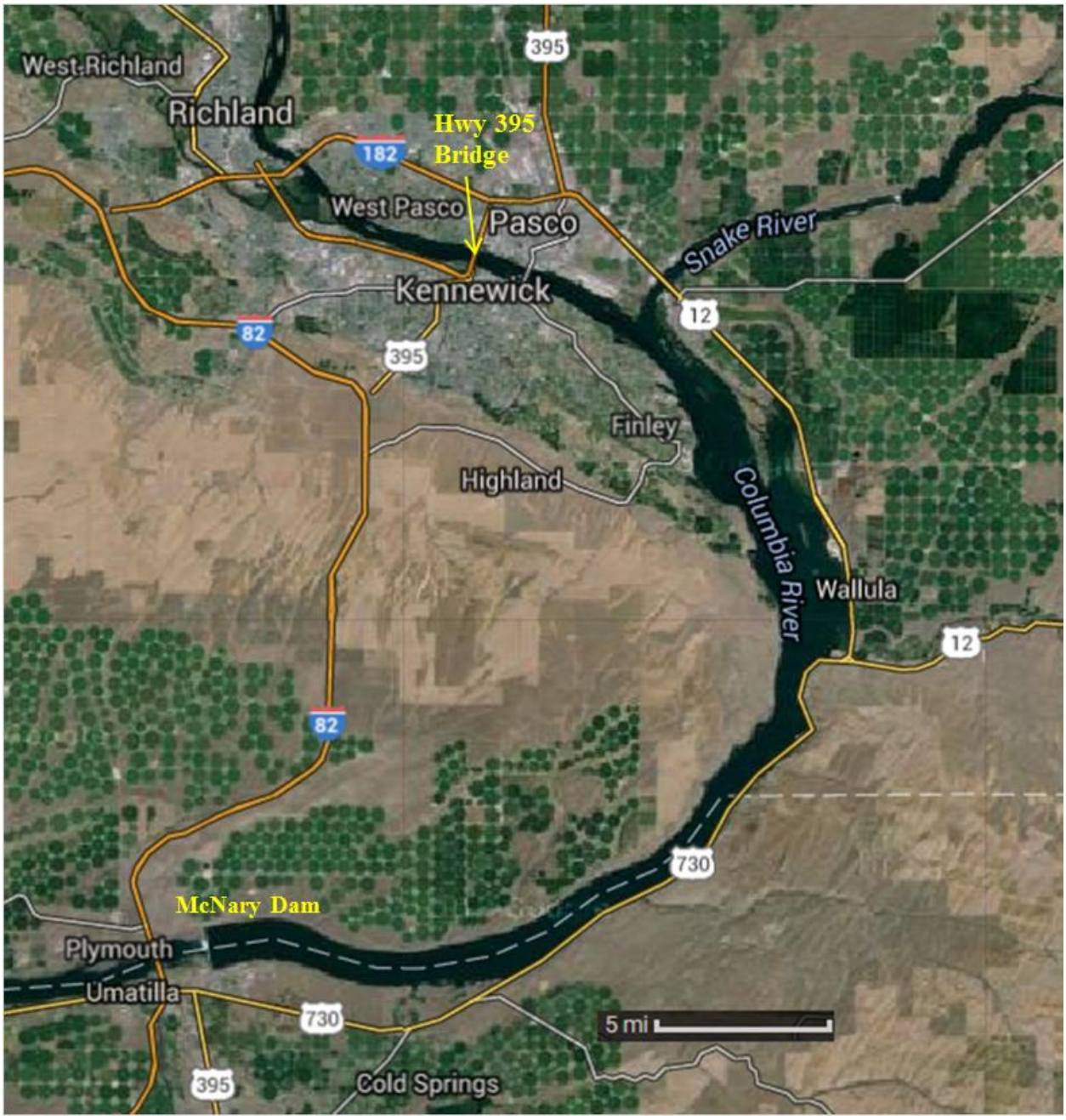

Figure 1. Catch Record Card Area 533, McNary Dam upstream to Highway 395.

Proposed Activity

Region 3 staff will conduct steelhead fishery monitoring in McNary Reservoir from August 1, 2016 through March 31, 2017. The fishery would be monitored from McNary Dam (RM 294) upstream to confluence of the Walla Walla River (RM 314) (Figure 2). This is the primary area where anglers fish for steelhead in CRC 533. Anglers are concentrated in relatively few locations in this 18-mile section of the Columbia River, so a large proportion of the anglers can be interviewed by monitoring a limited number of fishing areas. Emphasis will be placed on the boat anglers as they typically constitute the largest proportion of the harvest and likely have the greatest impact on wild ESA-listed steelhead.

The District 4 Biologist located in Pasco WA will hire and supervise the creel technician in addition to providing analysis and reporting of the data. The District 4 office is located in close proximity to CRC 533 and is currently conducting similar data collection and analysis for the Hanford Reach steelhead sport fishery. The District 4 Fish Biologist is fully supported by non-CRSSE state funding and no additional cost will in incurred for the supervision or analysis of the data. Estimates will be generated weekly from August through November and monthly from December through March (part-time technician). Data and estimates will be disseminated to all WDFW staff involved with the management of steelhead in the Columbia and Snake Rivers. In addition creel reports will be released through the WDFW website and media contacts to provide in-season effort, catch and harvest information for the benefit of steelhead anglers.

This proposal also allows WDFW to collect fishery management information on angler effort, catch, harvest, impacts to ESA-listed species, and other biological information including coded-wire tag data for steelhead and other species harvested in CRC 533 during the August – March period.

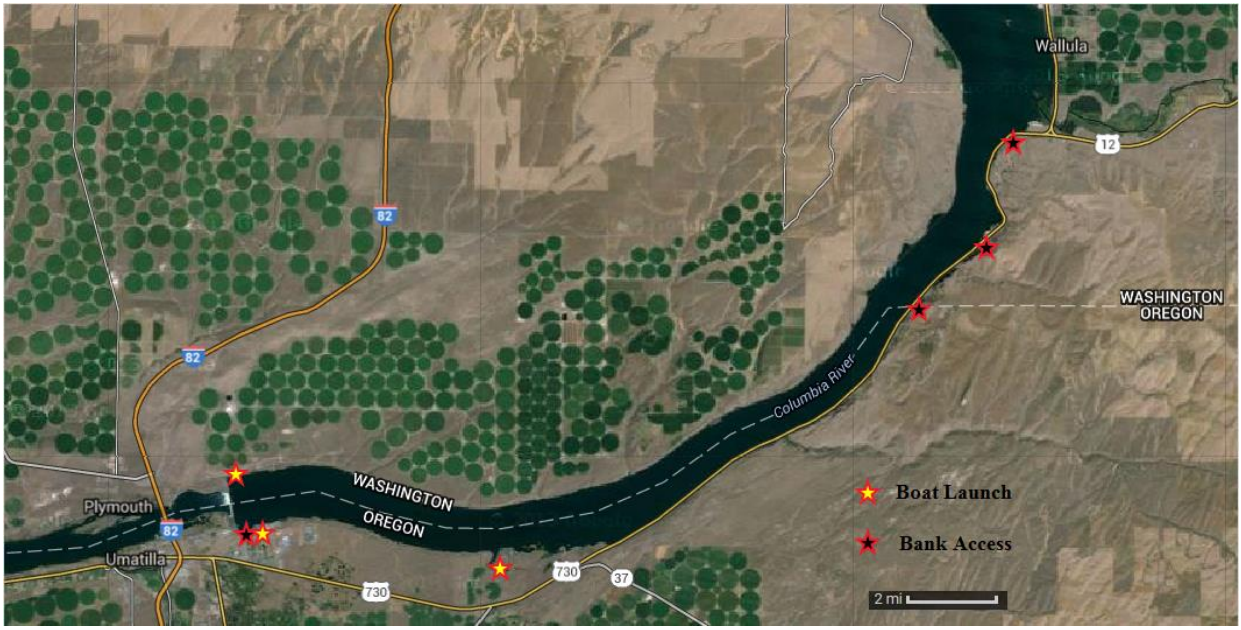

Figure 2. Proposed creel sampling locations in CRC 533.

Budget Required

An estimated **$42,918** (direct budget only) is needed to fund one scientific technician to sample McNary Reservoir from August 1, 2016 through March 31, 2017 (Table 3). The proposed budget includes labor, mileage, and equipment. These funds will provide a full-time monitoring effort from August 1 through November 30, the peak of the fishery. The position will be reduced to part-time from December 1 through March 31. Catch Record Card data shows a reduction in harvest during the winter months and most likely a reduction in angler effort. It is anticipated that adequate sampling can be collected with a part-time technician during the winter fishery without compromising the quality of the information. If approved, the part-time (1/2 time) technician position conducting sport fishery monitoring in the McNary Reservoir (December 1 - March 31) would be converted to a full-time position to include the ½ time monitoring effort in

Hanford Reach steelhead fishery. The budget listed in Table 3 reflects a cost savings by combining the two monitoring efforts from December through March by sharing the costs of insurance and other related personnel costs between the two winter creel monitoring efforts.

Table 3. Budget detail for McNary Reservoir steelhead sport fishery monitoring, August 1 – March 31, 2017.

Budget Item	Quantity	Unit Cost	Total
Creel Technician Salary	6.0 staff-months (Aug 1 – Mar 31)	$2,837 per month (Range 36, step C)	**$17,020**
Benefits (inc. health insurance)	6.0 months	$1,562 per month	**$9,372**
Vehicle Mileage	13,800 miles	$0.55/mi	**$7,590**
CWT "T" Wands	2	$4,154	**$8,308**
Equipment	Technician waders, sampling supplies & includes WDFW personnel fees		**$628**
Total			**$42,918**

The estimated cost for the sport fishery monitoring for 2016-17 includes the purchase of two CWT "T" wands used for the detection of CWTs from fish harvested during the fishery. The WDFW CWT Lab has provided CWT wands for fishery monitoring in prior years, but they no longer have sufficient wands to keep up with the demand statewide. For the past two years it has been necessary to broadcast statewide requests to all WDFW biologists to borrow CWT wands to sample the Hanford Reach and Yakima River fall fisheries. We currently need eight CWT wands to monitor the Hanford Reach/Yakima River fall fisheries; we have two wands currently on inventory in District 4. Borrowing wands from other staff has multiple issues. First being the lack of wand availability because of competing needs throughout the State for monitoring fall/winter fisheries. Secondly, the wands that are available are commonly older and may not be in good working condition. This has resulted in the need to return the wands for in-season repair causing additional ill-timed equipment deficits and costs to the project for the repairs and shipping. Finally, if a wand is lost or damaged while on loan, the project using the wand is responsible for replacement costs. CWT tagging is our best method of determining origins of steelhead and salmon in our fisheries. It is essential that there are a sufficient number of CWT wands owned by Region 3 to fully support the technician staff monitoring the fishery.

CWT wands are manufactured and sold by Northwest Marine Technology and the cost of each wand is $4,154 ($3,825 + sales tax). We are requesting funds of $8,308 to purchase two wands for monitoring the sport fishery. These wands will be provided to the technician supported by this proposal. Wands typically last multiple years (10+) so the cost will only be included in the 2016-17 proposal. These wands will be available for loan to other fisheries from April through July (e.g. Yakima spring chinook fishery monitoring). The scanning of salmon and steelhead for the presence of CWTs is an essential component of harvest sampling in northwest fisheries. Providing this equipment is vital to WDFW's ability to monitor current, expanding, or new fisheries.

Need for Proposed Activity

Mainstem fisheries up to the Hwy395 bridge are covered under the 2008-17 *U.S. v. Oregon* Management Agreement (Section 7 ESA consultation), which allows for only 2% ESA impact for all non-Indian fisheries in the entire area from Buoy 10 upstream to Hwy. 395. The popularity of the fisheries has been stable (or increased), but the steelhead populations have de-stabilized, so it is more difficult now to manage within that 2% limit.

We have been able to use CRC data with assumptions collected at Bonneville (BON), but that is "forcing" the data, especially once you get to McNary Dam. NOAA may not accept the same methodology when the new management agreement is written in 2017. Since the above Bonneville fishery accounts for a good majority of the catch in the fall season, the majority of the steelhead impacts come from this area. Having a better handle on the actual take of ESA-listed fish would help more accurately account for ESA mortality/impacts, and potentially reduce the need for any changes in fishery structure (e.g. emergency closures, reduced daily limit, etc.).

In 2015, as the fall season progressed, the projected return for steelhead declined continuously. WDFW had no data from any of the fisheries upstream of Bonneville Dam to tell us what steelhead catch/release was. Based on the average catch rates, we assumed the catch which barely allowed for a full fishery. If WDFW had real-time data, like we do downstream or in the Hanford Reach, our estimates would be much more accurate and could potentially deflect any need for truncating fisheries based on erroneous assumptions. We do not know: 1) how many total steelhead were caught between McNary Dam and Hwy 395 Bridge during the fall 2015 fishery, 2) how many were released, 3) how many were Group B fish from the Snake/Clearwater R.). When you start bumping up against the ESA impact limit, the questions become more critical and the assumptions used to answer those questions are scrutinized even more.

The risk is that the McNary Pool fishery could be closed if the standard assumptions continue to be used in the absence of real-time creel data to show that the fishery is operating within the wild fish impact limits. Creel census will provide an actual data point that may show a savings of impacts so that fisheries are not adversely impacted or provide a conservation benefit for wild fish by producing a more accurate estimation of actual take/impact.

The 2008-17 *U.S. v. Oregon* Management Agreement obligates WDFW to provide harvest estimates of steelhead by run (Group A or Group B) from August 1 through December 31 for all mainstem fisheries from below the mouth of Snake River to The Dalles Dam (Appendix A). It also requires that the fisheries be managed not to exceed 2% harvest impact for natural-origin Group B steelhead:

> "All Non-treaty fisheries outside the Snake River basin will be managed not to exceed 2% harvest impact for natural origin Group B index steelhead. Oregon and Washington will provide catch estimates annually. The harvest impacts will be estimated for Group A and Group B index steelhead. For the purposes of this Agreement, Group B index steelhead are defined as any steelhead measuring at least 78cm fork length and passing Bonneville Dam between July 1 and October 31." (*U.S. v. Oregon* 2008-17 Management Agreement, Harvest, Section E: Steelhead)

Stock composition (i.e. Group A vs. Group B) cannot be obtained from CRC harvest data because the two groups are differentiated by length, which is not reported on CRCs. By continuing to provide this fishing opportunity without being able to accurately estimate ESA impacts on Group B wild steelhead compromises our management/conservation/legal obligations to NOAA, our tribal co-managers and our public constituents.

Benefit of Proposed Activity

Some of the assumptions fishery managers use to assign stock composition and the number of wild releases can be questionable, especially the farther you move upstream from Bonneville Dam where the closest sampling occurs. Minimizing these assumptions by providing stock composition (Group A and Group B by fork length threshold) and number released will minimize the assumptions, provide real-time data and better reflect actual impacts. It is most efficient to collect this data in higher catch areas, like the McNary Dam forebay fishery and tributary mouths like the Walla Walla River.

In addition to improving our monitoring of the steelhead (and concurrent salmon) fishery and meeting the federal requirements for monitoring of impacts to ESA-listed species, the McNary Reservoir steelhead fishery is an extremely popular for both Oregon and Washington anglers in the mid-Columbia region. Although this fishery has not been monitored in the past, the economic value can be roughly estimated based on the annual CRC harvest estimate and estimating angler effort (i.e. angler trips) by dividing by the catch per unit effort (CPUE) from the Hanford Reach steelhead fishery, which is the closest intensively monitored fishery. The McNary Reservoir fishery (CRC 533) has provided a mean annual harvest of over 3,000 hatchery steelhead with fishing effort likely averaging around 16,000 angler trips per season, with a corresponding economic value of over $900,000 (Table 4).

Additional Considerations

This proposal is supported by WDFW Lower Columbia (R5) and Snake River (R1) fishery management and hatchery monitoring and evaluation (M&E) staff. In addition to monitoring the steelhead fishery, this creel survey will collect data for all other species targeted by anglers from August 1 - March 31, an ancillary fishery management benefit in this area of the Columbia River.

Table 4. Estimated angler trips, effort, and economic value for the McNary Reservoir steelhead sport fishery, 2007 – 2014 based on voluntarily returned Catch Record Cards (CRCs).

Fishery (Jun 16-Mar 31)	**Effort**[1] (Angler-Hours)	**Angler Trips**[2]	**Steelhead Harvest**[3] **(hatchery)**	**Steelhead Harvested per Angler-Trip**[4]	**Estimated Economic Value**[5]
2007-08	100,391	28,683	5,794	0.202	$1,663,624
2008-09	41,653	11,901	2,404	0.202	$690,257
2009-10	87,050	24,871	5,024	0.202	$1,442,535
2010-11	39,262	11,218	2,266	0.202	$650,634
2011-12	38,795	11,084	2,239	0.202	$642,881
2012-13	61,094	17,455	3,526	0.202	$1,012,416
2013-14	23,408	6,688	1,351	0.202	$387,911
Mean	**55,950**	**15,986**	**3,229**		**$927,180**

[1] Effort estimated based on 3.5 hours per angler-trip (mean Hanford Reach steelhead fishery 2008-13)
[2] Angler trips calculated based on mean number of steelhead harvested per angler trip, Hanford Reach 2008-13
[3] Harvest estimated from Catch Record Cards
[4] Mean number of steelhead harvested per angler trip, Hanford Reach 2008-13
[5] $58/angler trip as calculated by Wegge 2008

Appendix A. 2008-17*United States v. Oregon* Management Agreement (May 2008)

D. FALL CHINOOK (page 52)
8. In-Season Review
The Parties shall meet in-season to review run size updates and the fisheries that have occurred up to that point. If that review suggests that the States of Oregon and Washington or the Columbia River Treaty Tribes will be unable to achieve the fisheries or harvest sharing objectives described in Part II of this Agreement by continuing to adhere to the harvest rates set forth in Part II.D.3.b. and c. or Part II.E.3 and 4, the Parties may, by agreement, adjust those harvest rates. The total URB harvest rate resulting from such an adjustment shall not exceed those shown in Table A3. The total Group B index steelhead fall season harvest rate resulting from such an adjustment shall not exceed the rates shown in the abundance based harvest rate schedule shown in Table A4.

E. STEELHEAD (page 53)
1. Management Principles
The Parties have discussed the concerns identified by the tribes regarding the appropriateness of Group A and B steelhead stock separation as applied to fisheries management relative to non-harvest activities. Information and harvest management criteria will be established to address steelhead management issues. The Parties direct TAC to make recommendations to the Policy Committee for further studies as needed to address steelhead management issues. For the purposes of this Agreement, Group B index steelhead are defined as any steelhead measuring at least 78cm fork length and passing Bonneville Dam between July 1and October 31.

2. Steelhead Escapement Goals
TAC has completed a review of Snake River steelhead escapement information. The Parties will consider the information in monitoring management activities.

3. Non-treaty Columbia River Harvest Non-treaty fisheries in the mainstem Columbia River will be managed in approximate accordance with modeling summary results annually described in Attachment A. These fisheries will result in a harvest rate that is no greater than that shown in Table A4. Non-treaty fisheries for steelhead in the mainstem Columbia River and its tributaries will be managed consistent with United States v. Oregon and United States v. Washington case law principles regarding harvest sharing. All Non-treaty fisheries outside the Snake River basin will be managed not to exceed 2% harvest impact for natural origin Group B index steelhead. Oregon and Washington will provide catch estimates annually. The harvest impacts will be estimated for Group A and Group B index steelhead.

Table A4. Fall Management Period Steelhead Harvest Rate Schedule.

Forecast Bonneville Total B Steelhead Run Size	River Mouth URB Run Size	Treaty Total B Harvest Rate	Non-Treaty Natural Origin B Harvest Rate	Total Harvest Rate
<20,000	Any	13%	2.0%	15.0%
20,000	Any	15%	2.0%	17.0%
35,000	>200,000	20%	2.0%	22.0%
B Run Steelhead are defined as steelhead measuring ≥78 cm				

Footnotes for Table A4:
This harvest rate schedule applies to fall season fisheries only. These fisheries include all mainstem fisheries below the mouth of Snake River from August 1 through October 31and for mainstem fisheries from The Dalles Dam to the mouth of the Snake River from November 1 through December 31. Also included are fall season treaty fisheries in Drano Lake and tributary mouth sport fisheries in Zone 6 that impact Snake River steelhead.